

found that a pause duration between 3.5-50 milliseconds provided satisfactory results.

When a phaco handpiece was tested using the above ranges, it was found that the temperature at the cutting site did not rise above 45 °C. The best results occurred with a packet duration of 0.5 milliseconds and a pause duration of 3.5 milliseconds for a repetition frequency of 5 250 hertz (Hz). Because the transducers 18 do not resonate, the effective oscillation frequency of the transducers 18 and accompanying tip 14 is equal to the repetition frequency. 10

It is desirable to provide a pulse frequency that is the same or close to the natural frequency of the transducers. For example, for transducers with a natural frequency of 20 KHz, it was found that a pulse frequency of 15 22 KHz provided satisfactory results. In general it has been found that providing short packets of pulses that do not induce resonance in the transducers provides a cutting tool that can cut tissue without generating a significant 20 amount of heat.

While certain exemplary embodiments have been described and shown in the accompanying drawings, it is to be